

WHAT IS CLAIMED IS:

1. A method for setting mirrors of border pixels of a digital micromirror device to a desired "on" or "off" position, comprising the steps of:

5 applying appropriate voltages at the address electrodes and mirror of each pixel, such that the pixels are electrostatically set to tilt toward a first position;

 switching the electrode voltages; and

10 applying a reset signal to the pixels, such that they are positioned to the second position.

2. The method of Claim 1, wherein the first position is the "on" position and the second position is the "off" position.

15

3. The method of Claim 1, wherein the method is applied to pixels that are stuck in the first position.

20 4. The method of Claim 1, wherein the method is applied to pixels that are torqued in the first position.

5. The method of Claim 1, wherein the method is applied to pixels that are substantially flat.

25

6. The method of Claim 1, wherein the pixels have one or more spring tips.

7. The method of Claim 6, wherein the pixels have one or more spring tips associated with only the first position.

30

8. The method of Claim 1, wherein the switching step results in a voltage difference between the address electrodes and a positive mirror voltage, and wherein the reset signal applied a negative voltage to the mirror.

5

9. The method of Claim 8, wherein the reset signal provides a reset voltage to the mirror that is substantially more negative than the mirror voltage and positive electrode voltage.

10

10. The method of Claim 8, wherein the reset signal provides a reset voltage to the mirror that is substantially more negative than the mirror voltage and the positive electrode voltage, followed by an offset voltage that is substantially the same as the positive electrode voltage during the reset.

15

11. A method for setting the mirror of a border pixel of a digital micromirror device to an "off" position, comprising the steps of:

20

applying appropriate voltages at the address electrodes and mirror of the pixel, such that the pixel is electrostatically set to tilt toward the "on" position;

25

switching the electrode voltages, such that the pixel is electrostatically set to tilt toward the "off" position; and

applying a reset signal to the pixel, such that the pixel becomes positioned to the "off" position.

30

12. The method of Claim 11, wherein the method is applied to a pixel that is stuck in the "on" position.

13. The method of Claim 11, wherein the method is applied to a pixel that is torqued in the "on" position.

5 14. The method of Claim 11, wherein the method is applied to a pixel that is substantially flat.

15 15. The method of Claim 11, wherein the pixel has one or more spring tips.

10 16. The method of Claim 15, wherein the one or more spring tips are associated with only the "on" position.

15 17. The method of Claim 11, wherein the switching step results in a voltage difference between the address electrodes and a positive mirror voltage, and wherein the reset signal applied a negative voltage to the mirror.

20 18. The method of Claim 17, wherein the reset signal provides a reset voltage to the mirror that is substantially more negative than the mirror voltage and positive electrode voltage.

19. An array of micromirror pixels, comprising:
an inner array of active pixels, each comprising a
tiltable mirror suspended over a pair of opposing address
electrodes, such that the mirror is operable to tilt to
an on or off position due to electrostatic forces between
5 voltages applied to the address electrodes and to the
mirror and in response to a reset signal;

an outer perimeter of border pixels, each
comprising a tiltable mirror suspended over a pair of
10 opposing address electrodes, such that the mirror is
operable to tilt to an on or off position due to
electrostatic forces between voltages applied to the
address electrodes and to the mirror and in response to a
reset signal applied to the mirror; and

15 wherein the electrodes of the border pixels are
operable to be set to an "on" position, then switched,
and wherein the mirror is operable to receive at least
one reset signal.

20 20. The array of Claim 19, wherein the border
pixels are operable to have address electrode and mirror
voltages applied globally.

21. An array of micromirror pixels, comprising:
an inner array of active pixels, each comprising a
tiltable mirror suspended over a pair of opposing address
electrodes, such that the mirror is operable to tilt to
an on or off position due to electrostatic forces between
5 voltages applied to the address electrodes and to the
mirror and in response to a reset signal;

an outer perimeter of border pixels, each
comprising a tiltable mirror suspended over a pair of
10 opposing address electrodes, such that the mirror is
operable to tilt to an on or off position due to
electrostatic forces between voltages applied to the
address electrodes and to the mirror and in response to a
reset signal applied to the mirror; and

15 wherein each border pixel has one or more spring
tips at a landing area of its mirror.

22. The array of Claim 21, wherein each border
pixel has spring tips only under the on position of the
20 mirror.

23. The array of Claim 21, wherein each border
pixel has spring tips that are asymmetrical from the on
position to the off position.
25

24. A method for setting mirrors of border pixels of a digital micromirror device to a desired "on" or "off" position, comprising the steps of:

5 applying appropriate voltages at the address electrodes and mirror of each pixel, such that the pixels are electrostatically set to tilt toward the desired position; and

 applying a reset signal to the pixels, such that they are positioned to the desired position.

10